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STRUCTURE FILE UPDATES:   20 NOV 2008  HIGHEST RN 1073589-44-2
DICTIONARY FILE UPDATES:  20 NOV 2008  HIGHEST RN 1073589-44-2

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TSCA INFORMATION NOW CURRENT THROUGH July 5, 2008.

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FILE COVERS 1907 - 21 Nov 2008  VOL 149 ISS 22
FILE LAST UPDATED: 20 Nov 2008  (20081120/ED)

ZCAplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2008.

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  This file contains CAS Registry Numbers for easy and accurate
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'OBI' IS DEFAULT SEARCH FIELD FOR 'ZCAPLUS' FILE

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L14           2 SEA FILE=ZCAPLUS ABB=ON  PLU=ON  L10 AND (L11 OR L12)
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PROCESSING COMPLETED FOR L16
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                ANSWERS '1-2' FROM FILE ZCAPLUS

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L18  ANSWER 1 OF 2  ZCAPLUS  COPYRIGHT 2008 ACS on STN DUPLICATE 1
ACCESSION NUMBER:         2005:429490  ZCAPLUS  Full-text
DOCUMENT NUMBER:          142:465089
TITLE:                    Cyanine dyes for fluorescent labeling and detecting
                          biological and other materials
INVENTOR(S):              West, Richard Martin; Bosworth, Nigel; Mujumdar,
                          Ratnakar B.
PATENT ASSIGNEE(S):       Amersham Biosciences UK Limited, UK; Carnegie Mellon
                          University
SOURCE:                   PCT Int. Appl., 66 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

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RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
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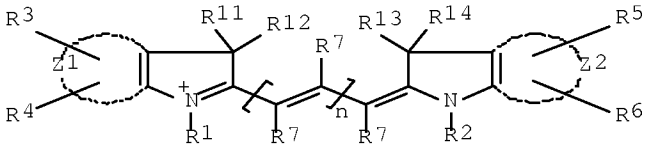
IN 2006DN02176 A 20070420 IN 2006-DN2176 20060420
US 20070203343 A1 20070830 US 2006-576956 20061127
PRIORITY APPLN. INFO.: US 2003-516428P P 20031031
WO 2004-GB4573 W 20041029
OTHER SOURCE(S): MARPAT 142:465089
GI



I

AB Title cyanine dyes are of formula (I) in which groups R3 and R4 are attached to the Z1 ring structure and groups R5 and R6 are attached to the Z2 ring structure, and n = 1, 2 or 3; Z1 and Z2 independently represent the carbon atoms necessary to complete a one ring, or two-fused ring aromatic system; at least one of groups R1, R2, R3, R4, R5, R6 and R7 is the group -E-F where E is a single bond or a spacer group and F is a target bonding group; one or more of groups R11, R12, R13 and R14 are independently selected from the group -(CH2)k-W, where W is sulfonic acid or phosphonic acid and k is an integer from 1 to 10. The dyes may be used in fluorescence labeling applications, where the presence of one and preferably multiple water solubilizing groups attached to the 3-position of the indolinium ring reduces dye-dye interactions, and hence dye-dye quenching, particularly where multiple dye mols. are attached to components such as nucleic acids, oligonucleotides, proteins and antibodies.
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 2 ZCAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2004:392531 ZCAPLUS Full-text
DOCUMENT NUMBER: 140:408234
TITLE: Chiral indole intermediates and their fluorescent cyanine dyes containing functional groups for application to biomolecules
INVENTOR(S): Mujumdar, Ratnaker B.; West, Richard Martin

PATENT ASSIGNEE(S): Carnegie Mellon University, USA; Amersham Biosciences UK Limited
SOURCE: PCT Int. Appl., 72 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004039894	A2	20040513	WO 2003-US14632	20030509
WO 2004039894	A3	20050303		
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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005536623	T	20051202	JP 2004-548262	20030509
US 20060051758	A1	20060309	US 2005-513141	20050128
PRIORITY APPLN. INFO.:			US 2002-379107P P	20020510
			WO 2003-US14632 W	20030509

OTHER SOURCE(S): MARPAT 140:408234

AB This invention relates to the functionalized cyanine dyes and more particularly, to the synthesis of chiral 3-substituted 2,3'-dimethyl-3H-indole and its derivs. as intermediates for preparation of cyanine dyes, to methods of preparing these dyes and the dyes so prepared, which are suitable as fluorescent labels for use with biomols. In an example, an indolium sulfonate dye was prepared from EtI and 6-(2,3-dimethyl-5-sulfo-3-hydroindol-3-yl)hexanoic acid followed by tri-Et orthoformate.

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DICTIONARY FILE UPDATES:  20 NOV 2008  HIGHEST RN 1073589-44-2

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FILE COVERS 1907 - 21 Nov 2008  VOL 149 ISS 22
FILE LAST UPDATED: 20 Nov 2008  (20081120/ED)

ZCAplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2008.

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  This file contains CAS Registry Numbers for easy and accurate
  substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'ZCAPLUS' FILE

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L9 ANSWER 1 OF 1 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:429490 ZCAPLUS Full-text
DOCUMENT NUMBER: 142:465089
TITLE: Cyanine dyes for fluorescent labeling and detecting biological and other materials
INVENTOR(S): West, Richard Martin; Bosworth, Nigel; Mujumdar, Ratnakar B.
PATENT ASSIGNEE(S): Amersham Biosciences UK Limited, UK; Carnegie Mellon University
SOURCE: PCT Int. Appl., 66 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005044923	A1	20050519	WO 2004-GB4573	20041029
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
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US 20070203343	A1	20070830	US 2006-576956	20061127
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OTHER SOURCE(S): MARPAT 142:465089
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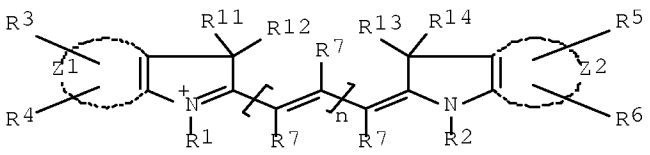

I

AB Title cyanine dyes are of formula (I) in which groups R3 and R4 are attached to the Z1 ring structure and groups R5 and R6 are attached to the Z2 ring structure, and n = 1, 2 or 3; Z1 and Z2 independently represent the carbon atoms necessary to complete a one ring, or two-fused ring aromatic system; at least one of groups R1, R2, R3, R4, R5, R6 and R7 is the group -E-F where E is a single bond or a spacer group and F is a target bonding group; one or more of groups R11, R12, R13 and R14 are independently selected from the group -(CH2)k-W, where W is sulfonic acid or phosphonic acid and k is an integer from 1 to 10. The dyes may be used in fluorescence labeling applications, where the presence of one and preferably multiple water solubilizing groups attached to the 3-position of the indolinium ring reduces dye-dye interactions, and hence dye-dye quenching, particularly where multiple dye mols. are attached to components such as nucleic acids, oligonucleotides, proteins and antibodies.

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RL: BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; production of cyanine dyes for fluorescent labeling and detecting biol. and other materials)

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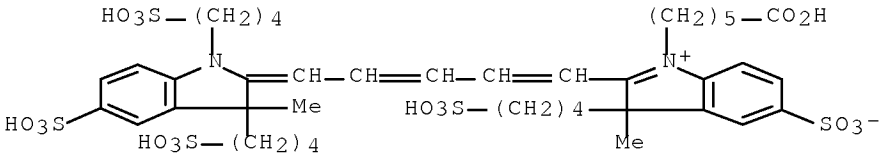

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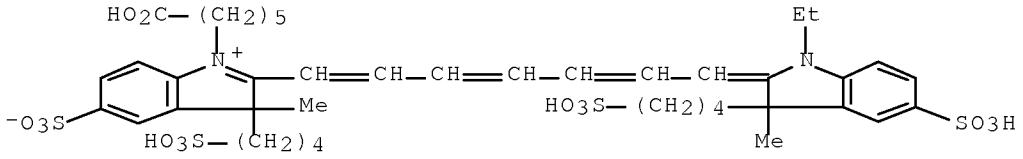

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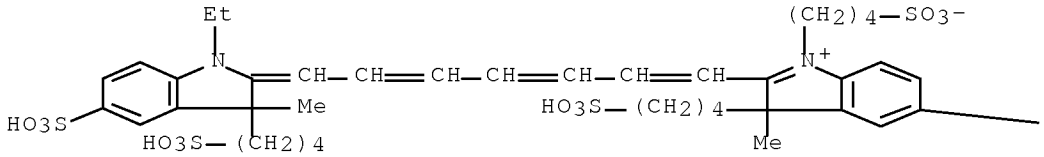

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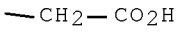

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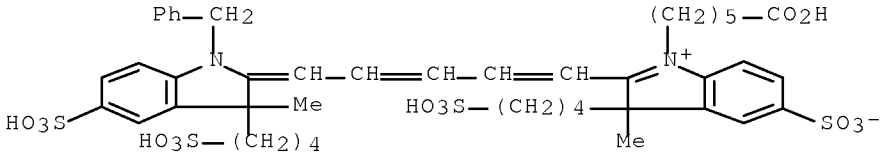

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RL: BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(production of cyanine dyes for fluorescent labeling and detecting biol. and other materials)

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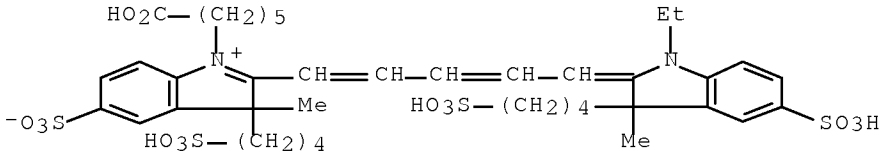

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RL: DGN (Diagnostic use); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(production of cyanine dyes for fluorescent labeling and detecting biol. and other materials)

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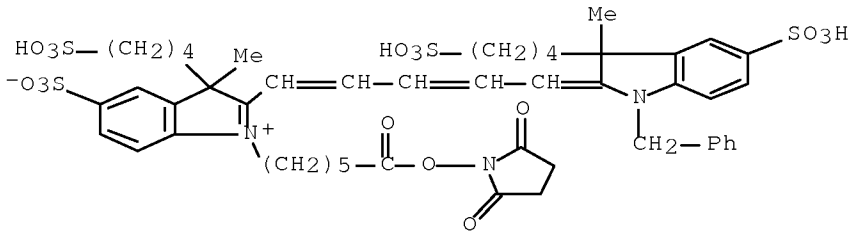

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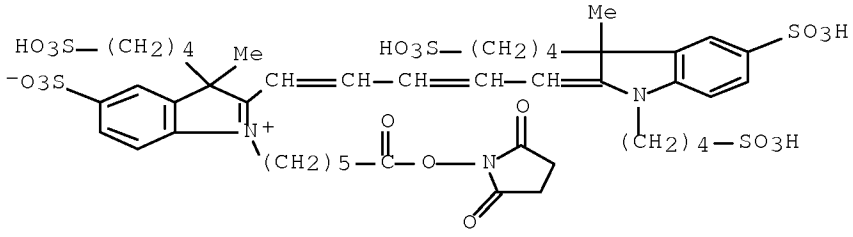

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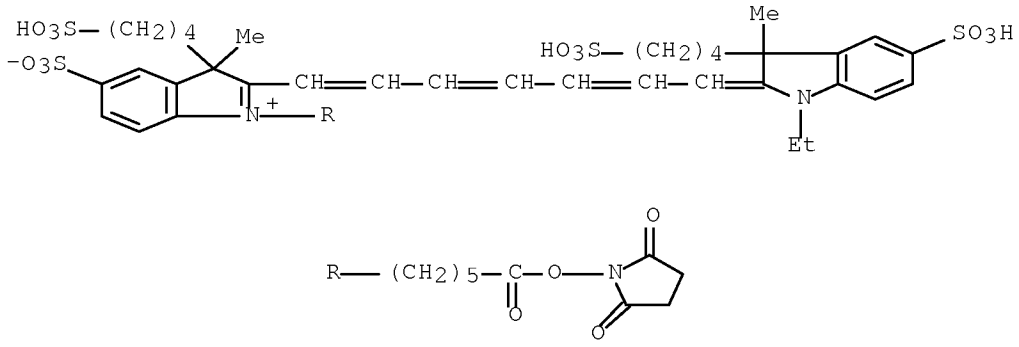
CN 3H-Indolium, 1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-2-[7-[1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)



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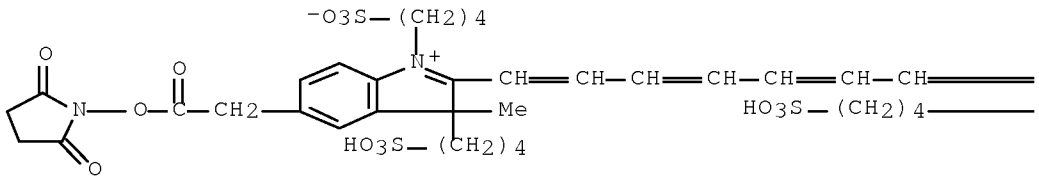
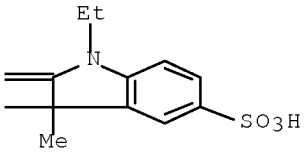
PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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FILE 'REGISTRY' ENTERED AT 12:05:46 ON 21 NOV 2008
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DICTIONARY FILE UPDATES:  20 NOV 2008  HIGHEST RN 1073589-44-2

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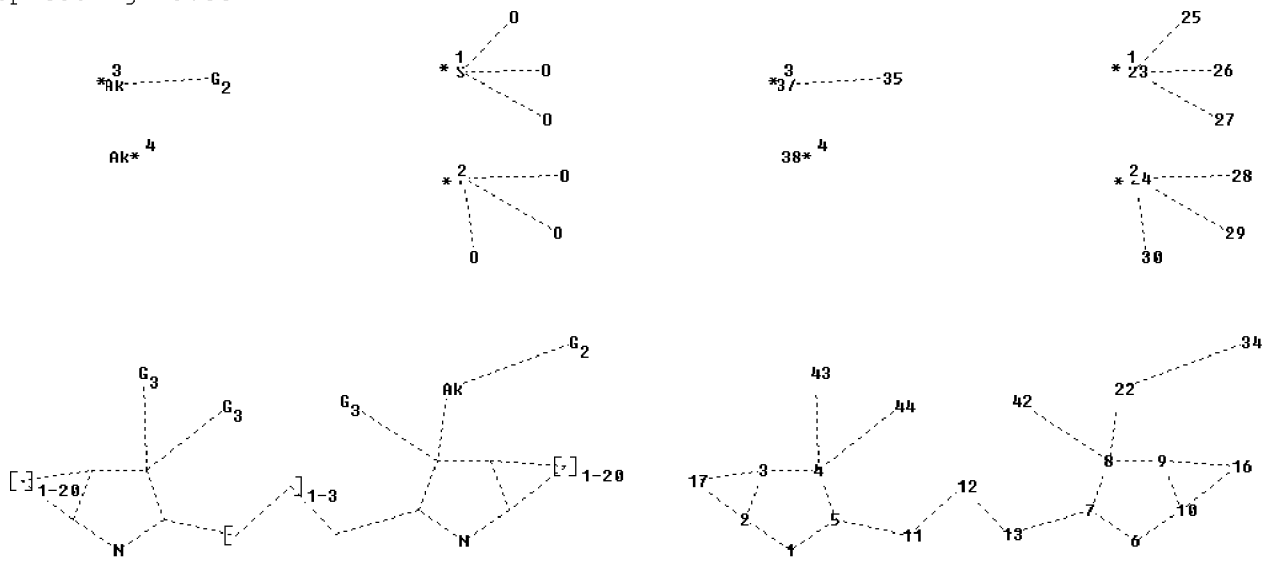

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ring/chain nodes :
11  12  13
chain bonds :
4-43  4-44  7-13  8-22  8-42  22-34  23-25  23-26  23-27  24-28  24-30  24-29  35-
37

ring/chain bonds :
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5-11  11-12  12-13
ring bonds :
1-2  1-5  2-3  2-17  3-4  3-17  4-5  6-7  6-10  7-8  8-9  9-10  9-16  10-16
exact/norm bonds :
1-2  1-5  2-3  2-17  3-4  3-17  4-5  4-43  4-44  5-11  6-7  6-10  7-8  7-13  8-9
8-22  8-42  9-10  9-16  10-16  11-12  12-13  22-34  23-25  23-26  23-27  24-28  24-
30  24-29  35-37



G2:[*1],[*2]

G3:[*3],[*4]

Connectivity :
5:3 E exact RC ring/chain  7:3 E exact RC ring/chain  11:3 X maximum RC ring/chain
12:3 X maximum RC ring/chain  13:3 X maximum RC ring/chain
Match level :
1:Atom  2:Atom  3:Atom  4:Atom  5:Atom  6:Atom  7:Atom  8:Atom  9:Atom  10:Atom
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44:CLASS
Generic attributes :
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Type of chain          : Linear
Saturation             : Saturated
37:
Type of chain          : Linear
Saturation             : Saturated




=> file zcaplus
FILE 'ZCAPLUS' ENTERED AT 12:05:49 ON 21 NOV 2008
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FILE COVERS 1907 - 21 Nov 2008  VOL 149 ISS 22
FILE LAST UPDATED: 20 Nov 2008  (20081120/ED)

ZCAplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2008.

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  This file contains CAS Registry Numbers for easy and accurate
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'OBI' IS DEFAULT SEARCH FIELD FOR 'ZCAPLUS' FILE

=> d stat que L6
L3              STR

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

Structure attributes must be viewed using STN Express query preparation.
L5           69 SEA FILE=REGISTRY SSS FUL L3
L6            7 SEA FILE=ZCAPLUS ABB=ON  PLU=ON  L5


=> d ibib abs hitstr L6 1-7

L6   ANSWER 1 OF 7  ZCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2008:770729  ZCAPLUS  Full-text
DOCUMENT NUMBER:          149:104997
TITLE:                    Preparation of peptide derivatives for use as contrast
                          agents
INVENTOR(S):              Tolleshaug, Helge; Cuthbertson, Alan; Karlsen, Hege
PATENT ASSIGNEE(S):       GE Healthcare AS, Norway
SOURCE:                   PCT Int. Appl., 53pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
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     WO 2008075968         A1    20080626    WO 2007-NO451           20071219
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             GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG,
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             PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN,
             TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
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             BY, KG, KZ, MD, RU, TJ, TM
PRIORITY APPLN. INFO.:                       NO 2006-5919        A  20061220
                                             NO 2007-5020        A  20071004
OTHER SOURCE(S):          MARPAT 149:104997
GI



* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

AB    The invention relates to peptide derivs. R-Sp-C-(L-P)n [the core unit C
      comprises amino acid residues; the linkers L may be PEG; P is a pos.-charged
      peptide unit; S is spacer unit, i.e., an alkyl chain or PEG; R is an imaging
      moiety, e.g., a radioactive or paramagnetic metal ion or a γ-emitting
```

radioactive halogen; p is 0 or 1; n is 1-16] which have at least one imaging moiety detectable in in vivo imaging, making the compds. useful as diagnostic contrast agents for imaging of proteoglycans, such as heparan sulfate proteoglycans. An example is peptide I which was prepared by the solid-phase method and may be chelated with a radioactive metal, preferably 99mTc.

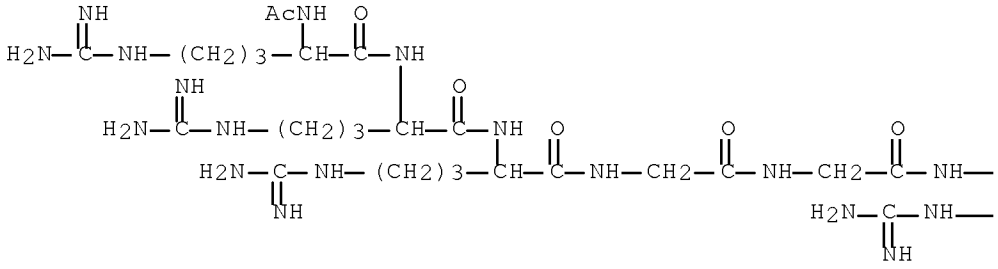
IT 1034924-66-7P

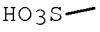
RL: DGN (Diagnostic use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of peptide derivs. as contrast agents)

RN 1034924-66-7 ZCAPLUS

CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A





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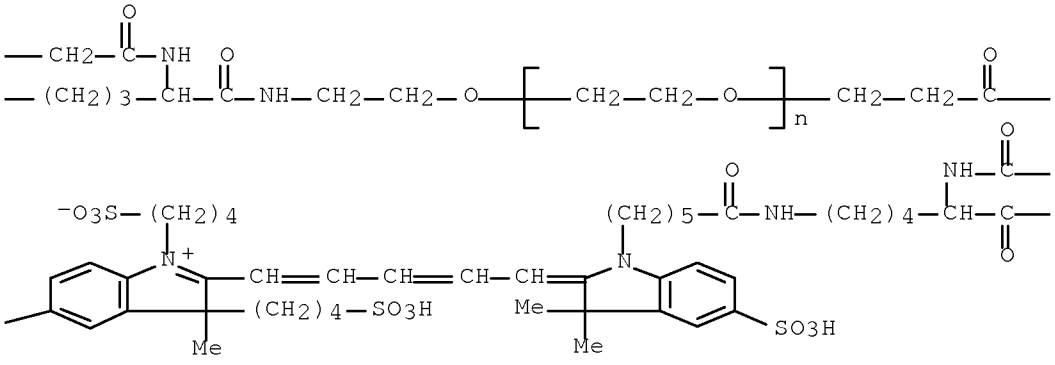

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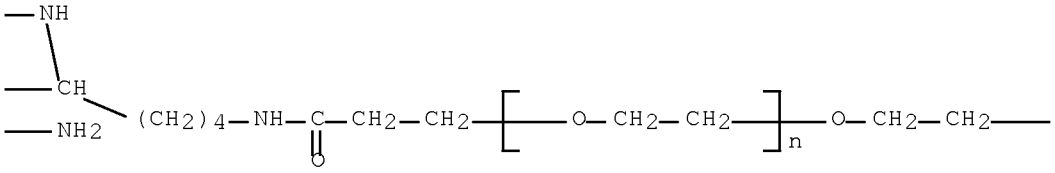

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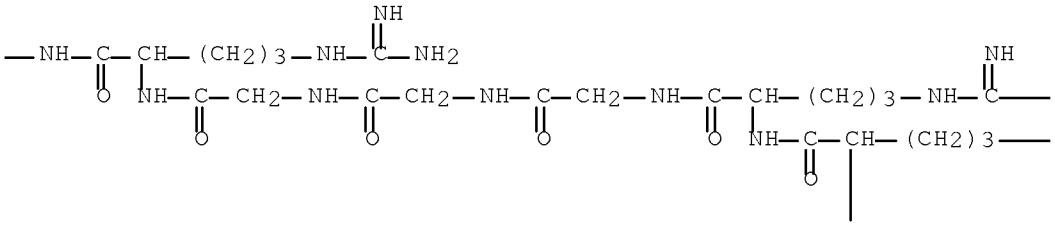

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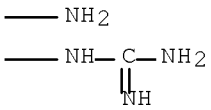

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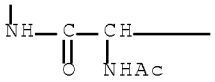

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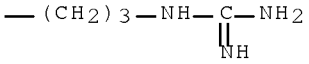
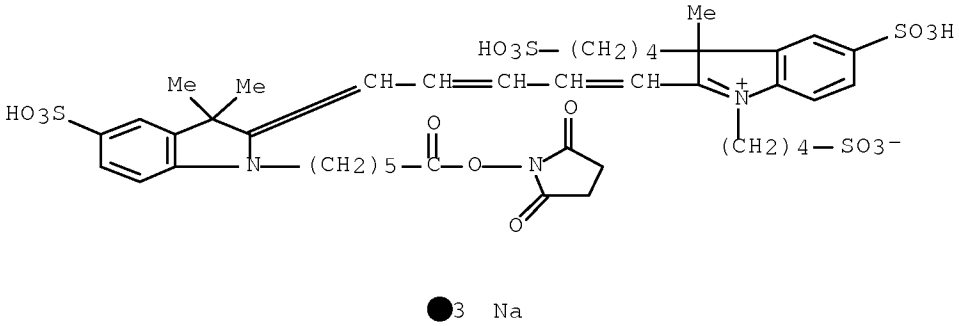


IT 1034924-69-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of peptide derivs. as contrast agents)
RN 1034924-69-0 ZCAPLUS
CN 3H-Indolium, 2-[5-[1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-1,3-dihydro-3,3-dimethyl-5-sulfo-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-, inner salt, sodium salt (1:3) (CA INDEX NAME)



● 3 Na

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 7 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:610856 ZCAPLUS Full-text
DOCUMENT NUMBER: 147:54152
TITLE: Hydrophilic marker on the basis of diastereomeric cyanines
INVENTOR(S): Czerney, Peter; Lehmann, Frank; Wenzel, Matthias; Frank, Wilhelm; Schweder, Bernd
PATENT ASSIGNEE(S): Dyomics GmbH, Germany
SOURCE: Eur. Pat. Appl., 10pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1792949	A2	20070606	EP 2006-25134	20061205
EP 1792949	A3	20080326		
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
DE 102006029454	A1	20070606	DE 2006-102006029454	20060627
DE 102006057345	A1	20070606	DE 2006-102006057345	20061205
US 20070128659	A1	20070607	US 2006-566699	20061205
PRIORITY APPLN. INFO.:			DE 2005-102005058587A	20051205
			DE 2006-102006029454A	20060627

OTHER SOURCE(S): MARPAT 147:54152
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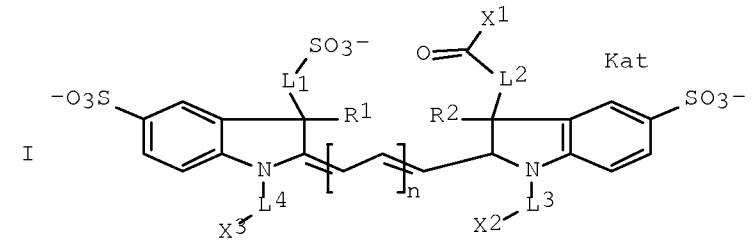

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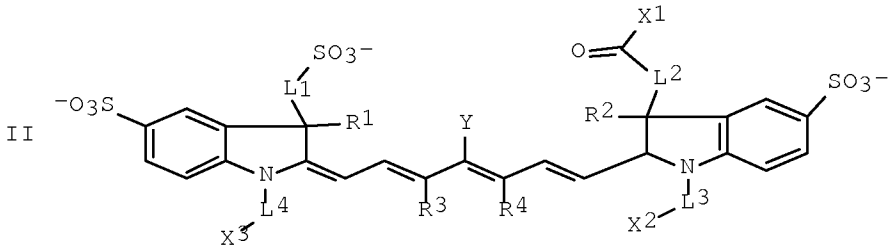


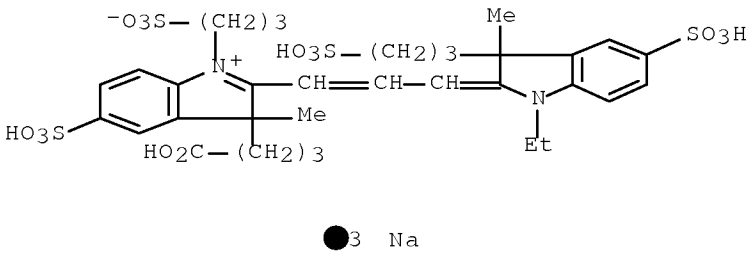
II

AB The title marker for biomols. based on diastereomeric cyanines (I) and (II) (R1 and R2 = aliphatic or heteroaliph. groups, L1 - L4 = divalent linear or cyclic, optionally substituted alkylene groups, X1 = OH, SH, NH2, NHNH2, halogen, ONHS or optionally substituted groups, X2 and X3 = H, alkyl, aryl, heteroaryl, OH, SH, NH2, NHNH2, halogen, ONHS or optionally substituted groups, Y = halogen, phenoxy- or substituted arylmercapto-group) with increased solubility in water and decreased tendency to dimerization can be used in assays employing excitation light sources and luminescence detectors.

IT 939886-40-5P 939886-42-7P 939886-45-0P
939886-46-1P 939886-47-2P 939886-49-4P
939886-50-7P 939886-51-8P 939886-52-9P
939886-53-0P
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(enantiomer mixture; fluorescent hydrophilic marker for biomols. based on diastereomeric cyanines)

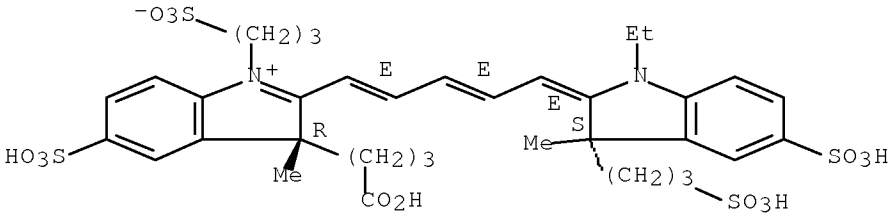
RN 939886-40-5 ZCAPLUS

CN 3H-Indolium, 3-(3-carboxypropyl)-2-[(1E)-3-[(3S,3E)-1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(3-sulfopropyl)-2H-indol-2-ylidene]-1-propen-1-yl]-3-methyl-5-sulfo-1-(3-sulfopropyl)-, inner salt, sodium salt (1:3), (3R)-rel- (CA INDEX NAME)



RN 939886-42-7 ZCAPLUS
CN 3H-Indolium, 3-(3-carboxypropyl)-2-[(1E,3E)-5-[(3S,5E)-1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(3-sulfopropyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-1-(3-sulfopropyl)-, inner salt, sodium salt (1:3), (3R)-rel- (CA INDEX NAME)

Relative stereochemistry.
Double bond geometry as shown.



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RN 939886-45-0 ZCAPLUS
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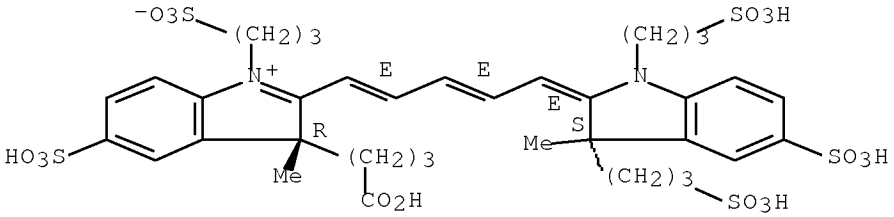
Relative stereochemistry.
Double bond geometry as shown.



●4 Na

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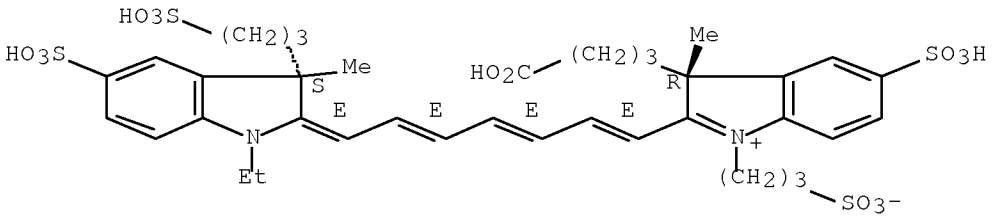
Relative stereochemistry.
Double bond geometry as shown.



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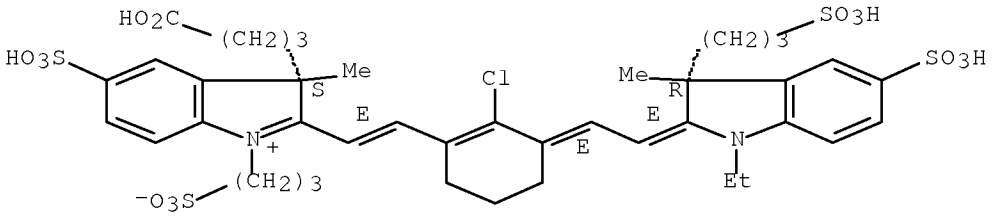
Relative stereochemistry.
Double bond geometry as shown.



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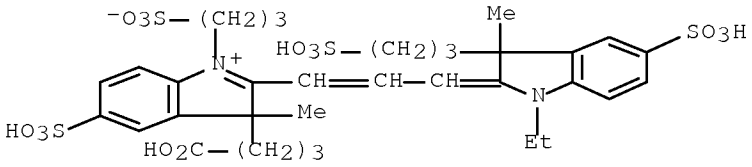

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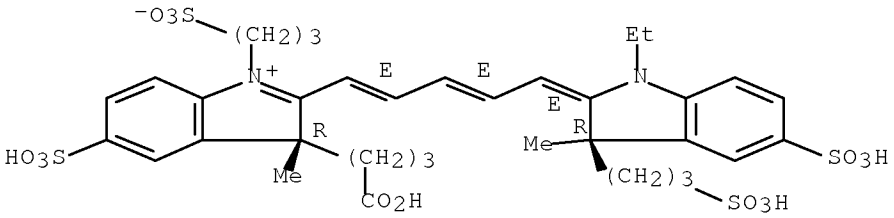
3-methyl-5-sulfo-3-(3-sulfopropyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-1-(3-sulfopropyl)-, inner salt, sodium salt (1:3), (3R)-rel- (CA INDEX NAME)

Relative stereochemistry.
Double bond geometry as shown.



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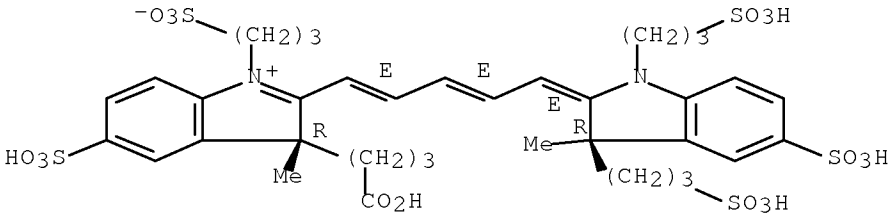
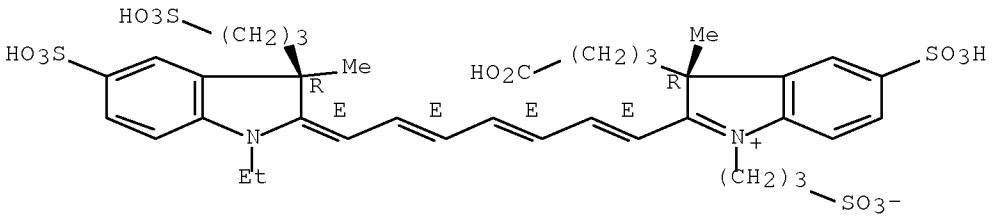
Relative stereochemistry.
Double bond geometry as shown.



4 Na

RN 939886-52-9 ZCAPLUS
CN 3H-Indolium, 3-(3-carboxypropyl)-2-[(1E,3E,5E,7E)-7-[(3R)-1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(3-sulfopropyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-5-sulfo-1-(3-sulfopropyl)-, inner salt, sodium salt (1:3), (3R)-rel- (CA INDEX NAME)

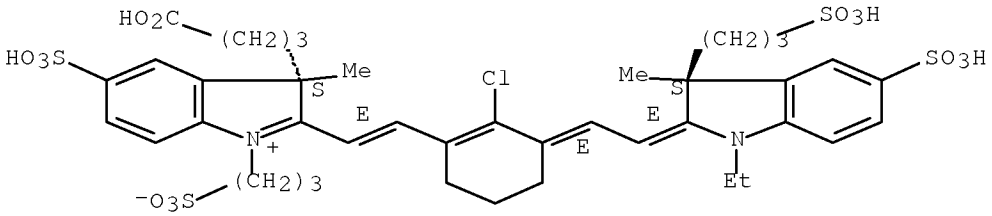
Relative stereochemistry.
Double bond geometry as shown.



●3 Na

RN 939886-53-0 ZCAPLUS
CN 3H-Indolium, 3-(3-carboxypropyl)-2-[(1E)-2-[2-chloro-3-[(3E)-2-[(2E,3S)-1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(3-sulfopropyl)-2H-indol-2-ylidene]ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-methyl-5-sulfo-1-(3-sulfopropyl)-, inner salt, sodium salt (1:3), (3S)-rel- (CA INDEX NAME)

Relative stereochemistry.
Double bond geometry as shown.



●3 Na

L6 ANSWER 3 OF 7 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:1109612 ZCAPLUS Full-text
DOCUMENT NUMBER: 145:456345
TITLE: Water-soluble fluoro-substituted cyanine dyes, as reactive fluorescence labeling reagents, and precursor 2-methyl-3H-indole derivatives
INVENTOR(S): Cooper, Michael Edward; Gardner, Nicholas John; Laughton, Peter Gordon
PATENT ASSIGNEE(S): Ge Healthcare UK Limited, UK
SOURCE: Brit. UK Pat. Appl., 102pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2425315	A	20061025	GB 2006-7571	20060418
AU 2006238753	A1	20061026	AU 2006-238753	20060418
CA 2605114	A1	20061026	CA 2006-2605114	20060418

WO 2006111726 A1 20061026 WO 2006-GB1400 20060418
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
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GB 2434150 A 20070718 GB 2007-6473 20060418
EP 1874871 A1 20080109 EP 2006-726795 20060418
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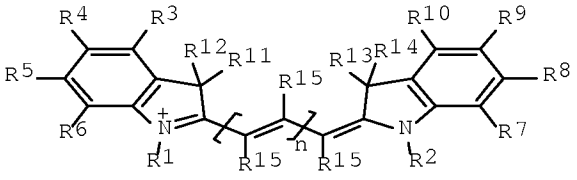
JP 2008538382 T 20081023 JP 2008-507155 20060418
US 20060239922 A1 20061026 US 2006-379596 20060421
PRIORITY APPLN. INFO.: GB 2005-8082 A 20050422
GB 2005-17656 A 20050831
GB 2006-7571 A3 20060418
WO 2006-GB1400 W 20060418
OTHER SOURCE(S): MARPAT 145:456345
GI



I

AB Disclosed are cyanine dyes that are useful for labeling and detecting biol. and other materials. The dyes are of formula I: in which the substituents are as defined in claim 1 and, in particular, at least one of groups R, R is -L-M or -L-P, where L is a linking group, M is a target bonding group and P is a conjugated component, and at least one of groups R, R comprises F. The use of cyanine dyes substituted by fluorine and having addnl. substitution with three or more sulfonic acid groups for labeling biol. target mols. results in a labeled product in which there is reduced dye-dye aggregation and improved photostability, compared with cyanine dyes having no such substitutions. The dyes of the present invention are particularly useful in assays involving fluorescence detection where continual or repeated excitation is a requirement, for example in kinetic studies, or in microarray analyses where microarray slides may need to be reanalyzed over a period of days. Also disclosed are precursor 2-methyl-indolinium derivs. as defined in claim 46, as well as related cyanine dyes and 2-methyl-indolinium derivs. as defined in claims 35, 53 and 56, and 4,5,6,7-tetrafluoro-2,3-dimethyl-3H-indoles with either a 5-carboxypentyl or 4-sulfobutyl substituent in the 3-position.

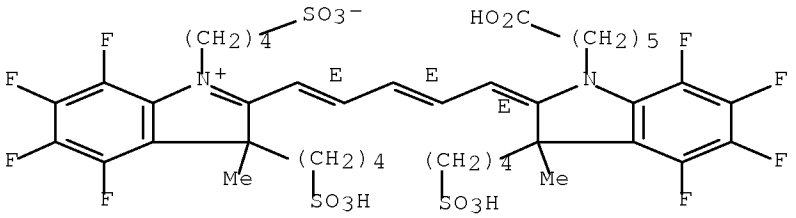
IT 913198-38-6P 913198-39-7P 913198-40-0P
913198-41-1P 913198-42-2P 913198-43-3P
913198-44-4P 913198-45-5P 913198-46-6P
913198-47-7P 913198-48-8P 913198-49-9P

913198-50-2P 913198-51-3P 913198-52-4P
913198-53-5P 913198-55-7P 913198-56-8P
913198-57-9P 913198-58-0P 913198-59-1P
RL: IMF (Industrial manufacture); PRP (Properties); RGT (Reagent); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(dye; manufacture of water-soluble fluoro-substituted cyanine dyes useful for
reactive fluorescence labeling reagents, and precursor 2-Me-3H-indole derivs.)

RN 913198-38-6 ZCAPLUS

CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

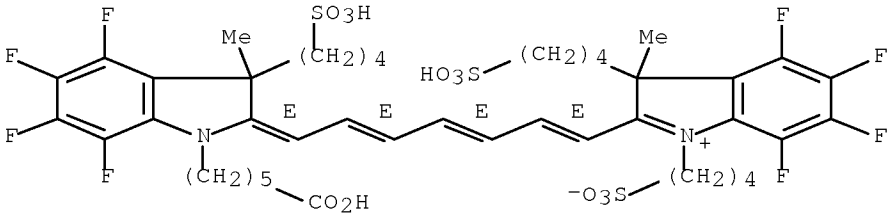
Double bond geometry as shown.



RN 913198-39-7 ZCAPLUS

CN 3H-Indolium, 2-[(1E,3E,5E,7E)-7-[1-(5-carboxypentyl)-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

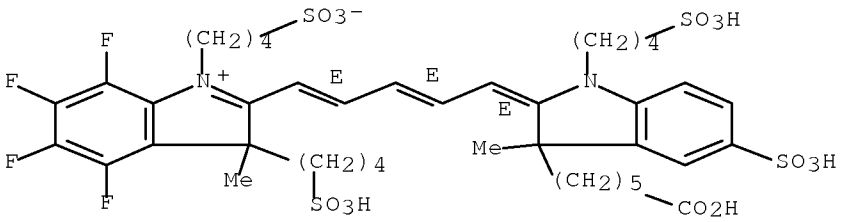
Double bond geometry as shown.



RN 913198-40-0 ZCAPLUS

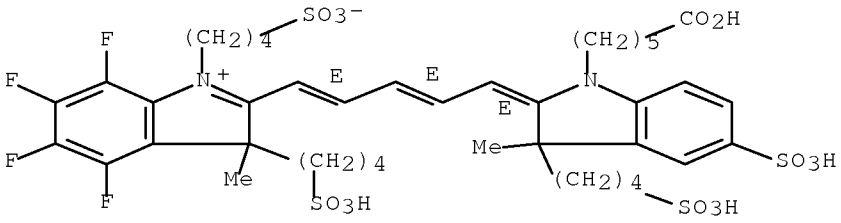
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[3-(5-carboxypentyl)-1,3-dihydro-3-methyl-5-sulfo-1-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



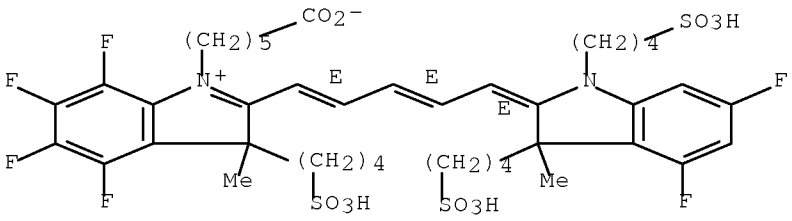
RN 913198-41-1 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



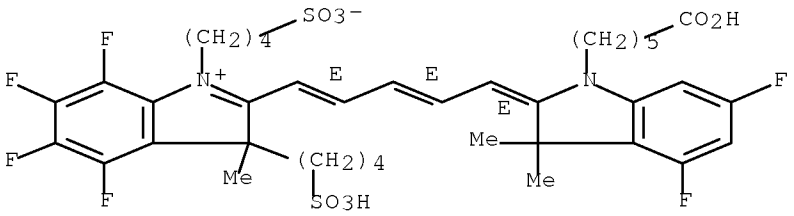
RN 913198-42-2 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[4,6-difluoro-1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



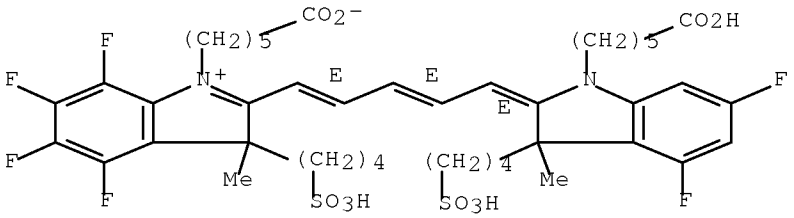
RN 913198-43-3 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-4,6-difluoro-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



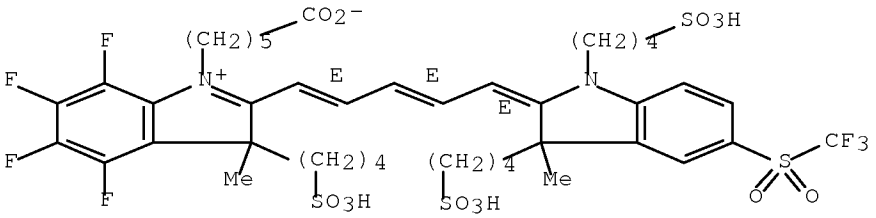
RN 913198-44-4 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-4,6-difluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



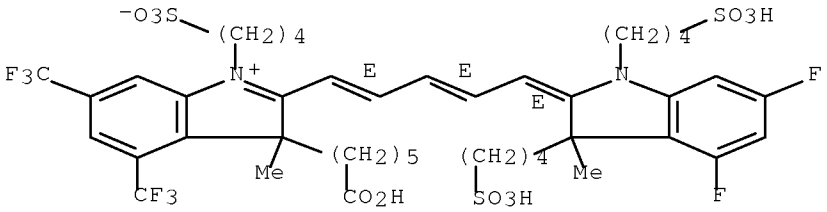
RN 913198-45-5 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-5-[(trifluoromethyl)sulfonyl]-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



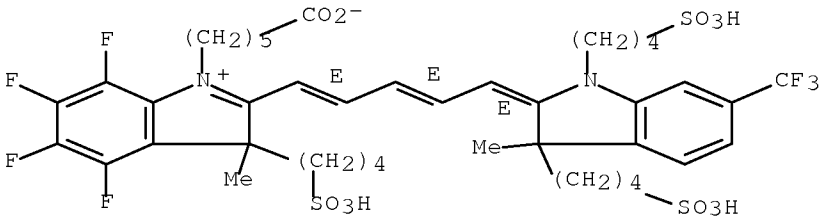
RN 913198-46-6 ZCAPLUS
CN 3H-Indolium, 3-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[4,6-difluoro-1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-1-(4-sulfobutyl)-4,6-bis(trifluoromethyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



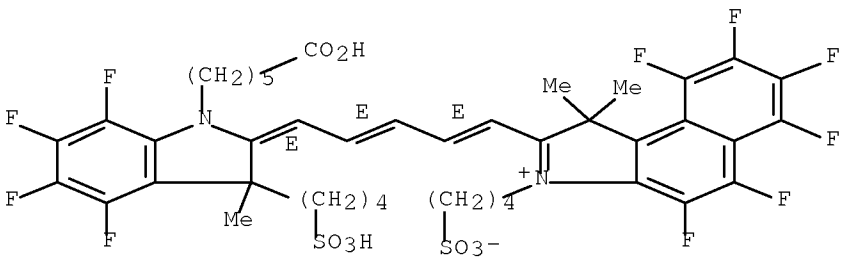
RN 913198-47-7 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-6-(trifluoromethyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



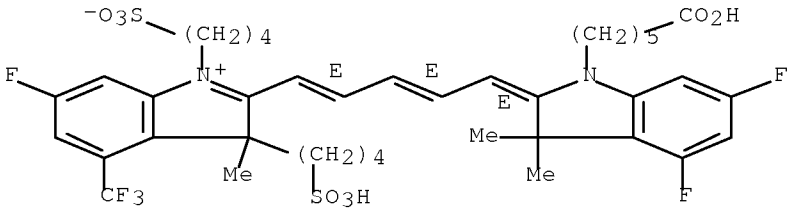
RN 913198-48-8 ZCAPLUS
CN 1H-Benz[e]indolium, 2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7,8,9-hexafluoro-1,1-dimethyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



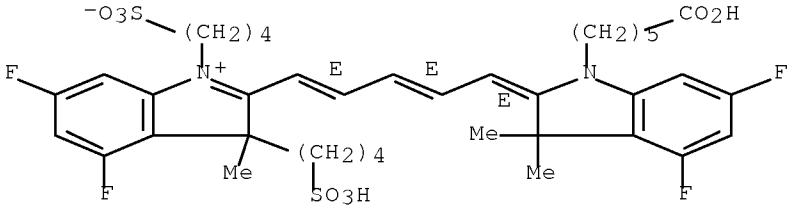
RN 913198-49-9 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-4,6-difluoro-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-6-fluoro-3-methyl-1,3-bis(4-sulfobutyl)-4-(trifluoromethyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



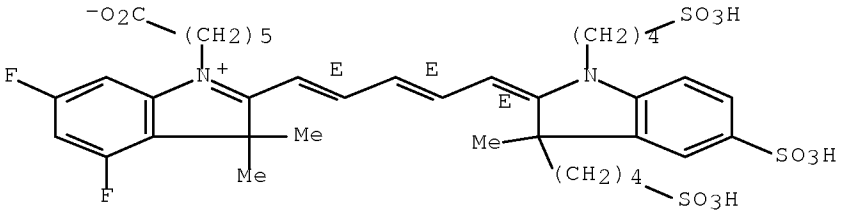
RN 913198-50-2 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-(5-carboxypentyl)-4,6-difluoro-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,6-difluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



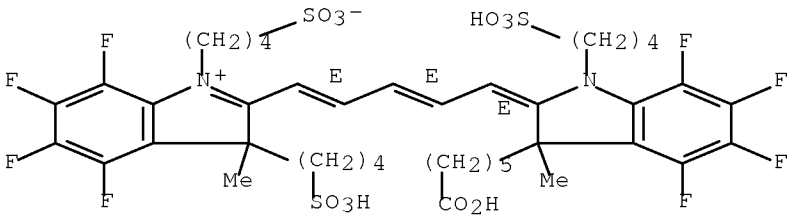
RN 913198-51-3 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[1,3-dihydro-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,6-difluoro-3,3-dimethyl-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



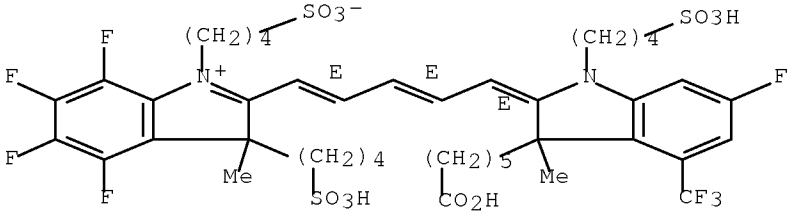
RN 913198-52-4 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[3-(5-carboxypentyl)-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-1-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



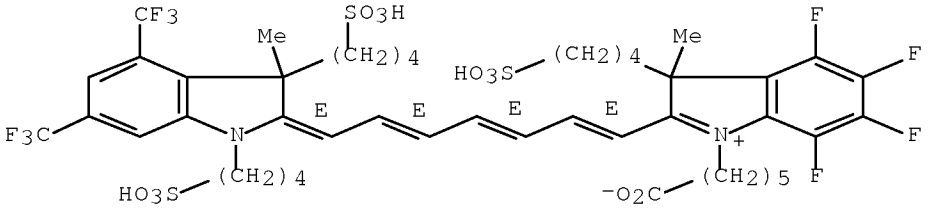
RN 913198-53-5 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[3-(5-carboxypentyl)-6-fluoro-1,3-dihydro-3-methyl-1-(4-sulfobutyl)-4-(trifluoromethyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



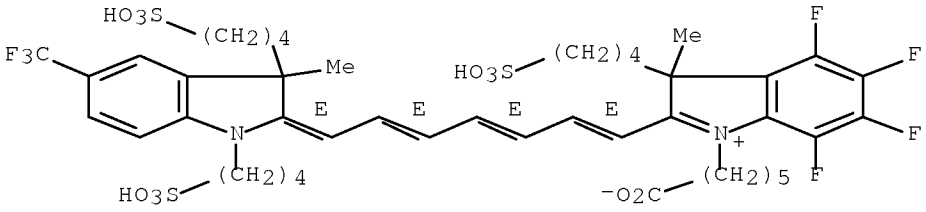
RN 913198-55-7 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E,7E)-7-[1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-4,6-bis(trifluoromethyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.

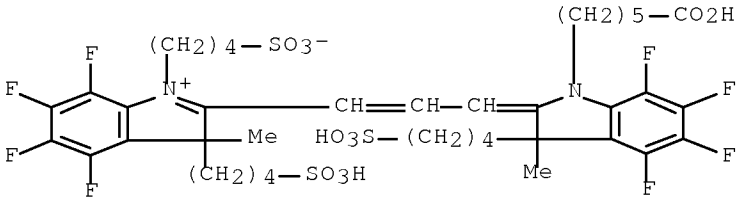


RN 913198-56-8 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E,5E,7E)-7-[1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-5-(trifluoromethyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

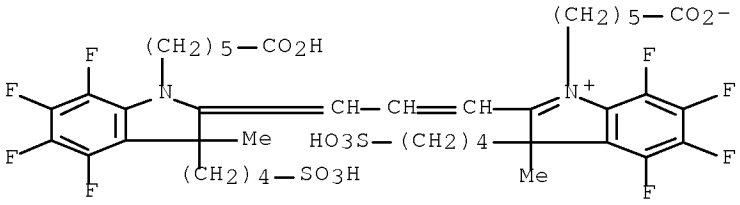
Double bond geometry as shown.



RN 913198-57-9 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E)-3-[1-(5-carboxypentyl)-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1-propen-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

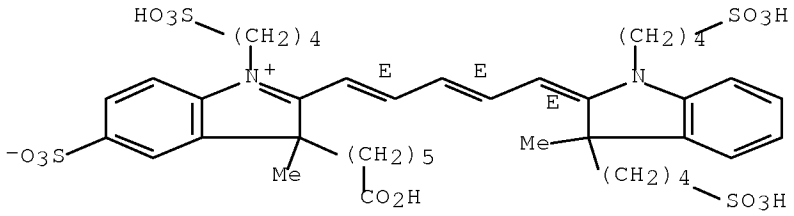


RN 913198-58-0 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[(1E,3E)-3-[1-(5-carboxypentyl)-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1-propen-1-yl]-4,5,6,7-tetrafluoro-3-methyl-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)



RN 913198-59-1 ZCAPLUS
CN 3H-Indolium, 3-(5-carboxypentyl)-2-[(1E,3E,5E)-5-[1,3-dihydro-3-methyl-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-1-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.

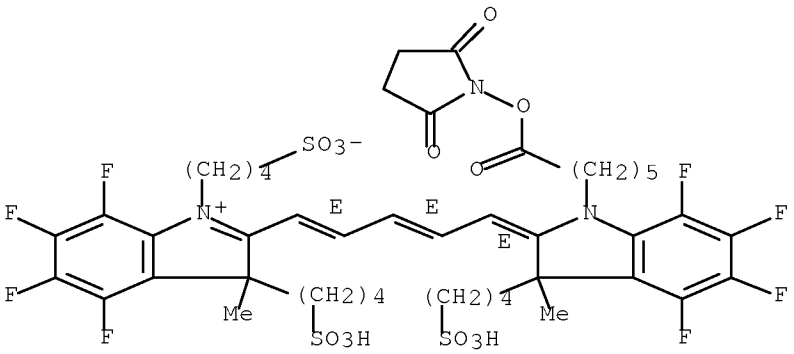


IT 913198-63-7P 913198-64-8P 913198-90-0P
913198-91-1P
RL: IMF (Industrial manufacture); PRP (Properties); RGT (Reagent); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(manufacture of water-soluble fluoro-substituted cyanine dyes useful for reactive fluorescence labeling reagents, and precursor 2-Me-3H-indole derivs.)

RN 913198-63-7 ZCAPLUS

CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-4,5,6,7-tetrafluoro-1,3-dihydro-3-methyl-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

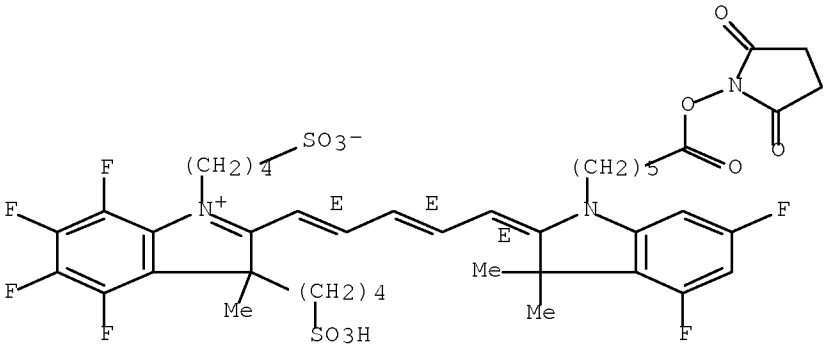
Double bond geometry as shown.



RN 913198-64-8 ZCAPLUS

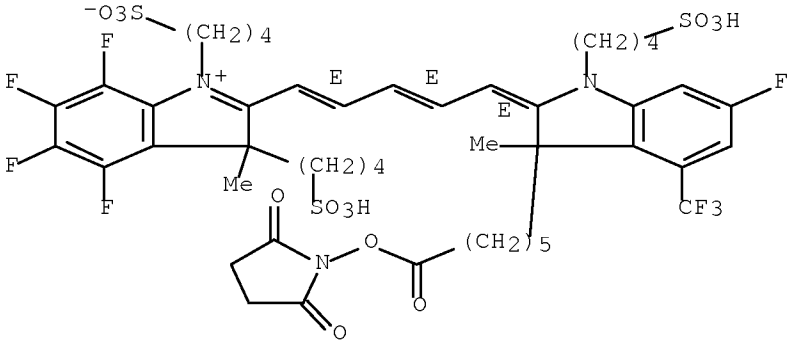
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-4,6-difluoro-1,3-dihydro-3,3-dimethyl-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



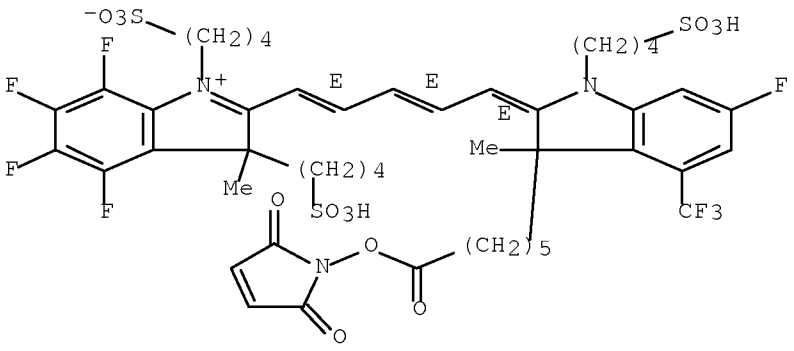
RN 913198-90-0 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[3-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-6-fluoro-1,3-dihydro-3-methyl-1-(4-sulfobutyl)-4-(trifluoromethyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



RN 913198-91-1 ZCAPLUS
CN 3H-Indolium, 2-[(1E,3E,5E)-5-[3-[6-[(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)oxy]-6-oxohexyl]-6-fluoro-1,3-dihydro-3-methyl-1-(4-sulfobutyl)-4-(trifluoromethyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-4,5,6,7-tetrafluoro-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

Double bond geometry as shown.



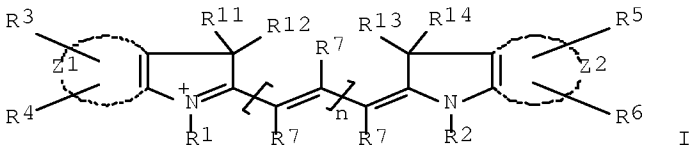
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 7 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:429490 ZCAPLUS Full-text
DOCUMENT NUMBER: 142:465089
TITLE: Cyanine dyes for fluorescent labeling and detecting biological and other materials
INVENTOR(S): West, Richard Martin; Bosworth, Nigel; Mujumdar, Ratnakar B.
PATENT ASSIGNEE(S): Amersham Biosciences UK Limited, UK; Carnegie Mellon University
SOURCE: PCT Int. Appl., 66 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2005044923	A1	20050519	WO 2004-GB4573		20041029
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
EP 1678258	A1	20060712	EP 2004-791610		20041029
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK					
CN 1875073	A	20061206	CN 2004-80032219		20041029
JP 2007510031	T	20070419	JP 2006-537422		20041029
IN 2006DN02176	A	20070420	IN 2006-DN2176		20060420
US 20070203343	A1	20070830	US 2006-576956		20061127
PRIORITY APPLN. INFO.:			US 2003-516428P	P	20031031
			WO 2004-GB4573	W	20041029

OTHER SOURCE(S): MARPAT 142:465089

GI



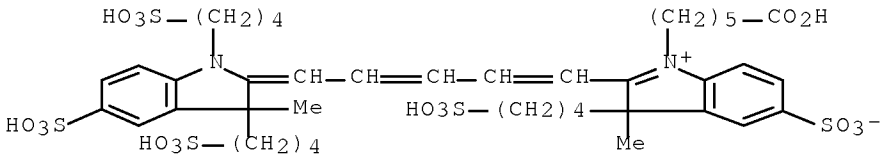
I

AB Title cyanine dyes are of formula (I) in which groups R3 and R4 are attached to the Z1 ring structure and groups R5 and R6 are attached to the Z2 ring structure, and n = 1, 2 or 3; Z1 and Z2 independently represent the carbon atoms necessary to complete a one ring, or two-fused ring aromatic system; at least one of groups R1, R2, R3, R4, R5, R6 and R7 is the group -E-F where E is a single bond or a spacer group and F is a target bonding group; one or more of groups R11, R12, R13 and R14 are independently selected from the group -(CH2)k-W, where W is sulfonic acid or phosphonic acid and k is an integer from 1 to 10. The dyes may be used in fluorescence labeling applications, where the presence of one and preferably multiple water solubilizing groups attached to the 3-position of the indolinium ring reduces dye-dye interactions, and hence dye-dye quenching, particularly where multiple dye mols. are attached to components such as nucleic acids, oligonucleotides, proteins and antibodies.

IT 851528-25-1P, 2-[5-[1-(5-Carboxypentyl)-3-methyl-5-sulfo-3-(4-sulfobutyl)-1,3-dihydro-2H-indol-2-ylidene]penta-1,3-dienyl]-3-methyl-1,3-bis(4-sulfobutyl)-3H-indolium-5-sulfonate 851528-28-4P, 2-[7-[1-(5-Carboxypentyl)-3-methyl-5-sulfo-3-(4-sulfobutyl)-1,3-dihydro-2H-indol-2-ylidene]hepta-1,3,5-trienyl]-1-ethyl-3-methyl-3-(4-sulfobutyl)-3H-indolium-5-sulfonate 851528-29-5P 851528-32-0P, 1-Benzyl-2-[5-[1-(5-carboxypentyl)-3-methyl-5-sulfo-3-(4-sulfobutyl)-1,3-dihydro-2H-indol-2-ylidene]penta-1,3-dienyl]-3-methyl-3-(4-sulfobutyl)-3H-indolium-5-sulfonate
RL: BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; production of cyanine dyes for fluorescent labeling and detecting biol. and other materials)

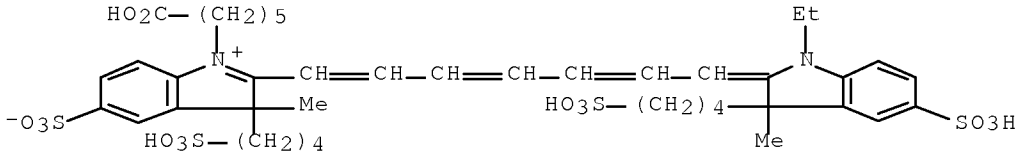
RN 851528-25-1 ZCAPLUS

CN 3H-Indolium, 1-(5-carboxypentyl)-2-[5-[1,3-dihydro-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)



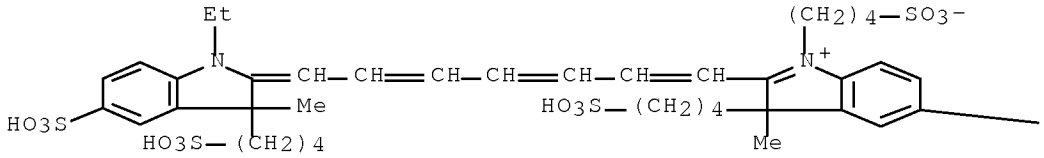
RN 851528-28-4 ZCAPLUS

CN 3H-Indolium, 1-(5-carboxypentyl)-2-[7-[1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

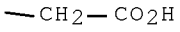


RN 851528-29-5 ZCAPLUS
CN 3H-Indolium, 5-(carboxymethyl)-2-[7-[1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

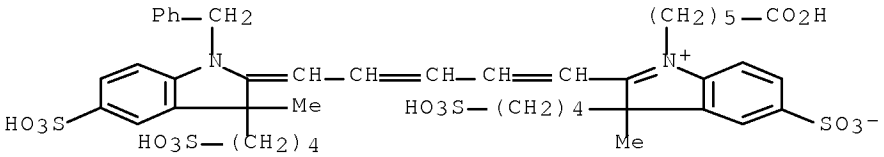
PAGE 1-A



PAGE 1-B



RN 851528-32-0 ZCAPLUS
CN 3H-Indolium, 1-(5-carboxypentyl)-2-[5-[1,3-dihydro-3-methyl-1-(phenylmethyl)-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

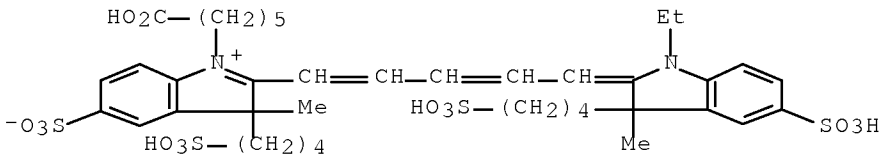


IT 851528-19-3P
RL: BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(production of cyanine dyes for fluorescent labeling and detecting biol.

and other materials)

RN 851528-19-3 ZCAPLUS

CN 3H-Indolium, 1-(5-carboxypentyl)-2-[5-[1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)



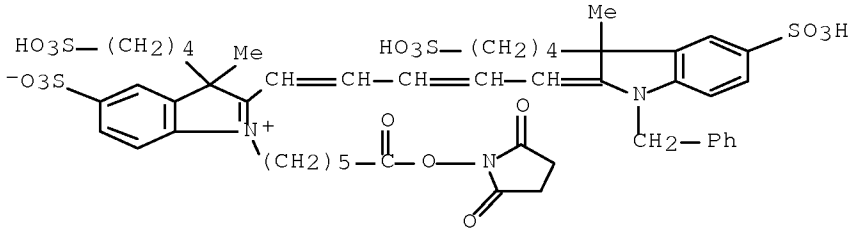
IT 851528-34-2P 851528-35-3P 851528-36-4P 851528-37-5P

RL: DGN (Diagnostic use); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)

(production of cyanine dyes for fluorescent labeling and detecting biol. and other materials)

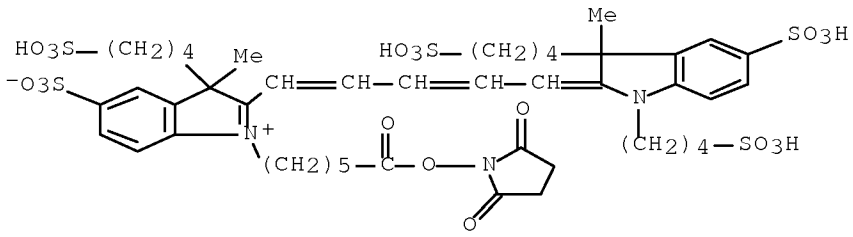
RN 851528-34-2 ZCAPLUS

CN 3H-Indolium, 2-[5-[1,3-dihydro-3-methyl-1-(phenylmethyl)-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

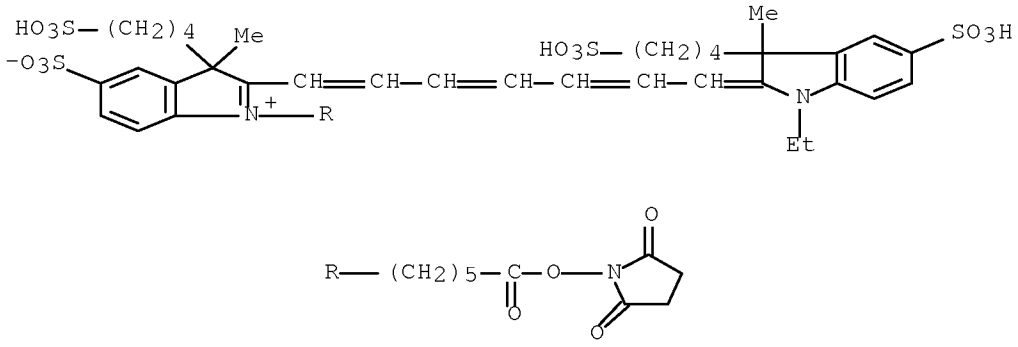


RN 851528-35-3 ZCAPLUS

CN 3H-Indolium, 2-[5-[1,3-dihydro-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3-pentadien-1-yl]-1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

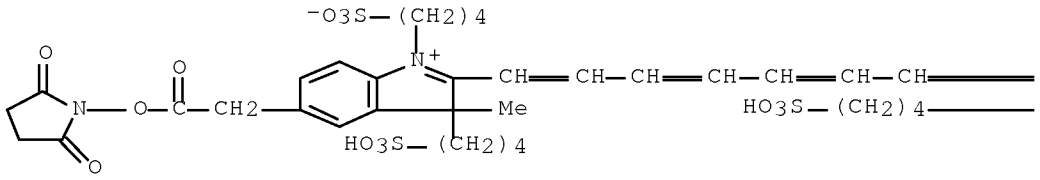


RN 851528-36-4 ZCAPLUS
CN 3H-Indolium, 1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-2-[7-[1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-5-sulfo-3-(4-sulfobutyl)-, inner salt (CA INDEX NAME)

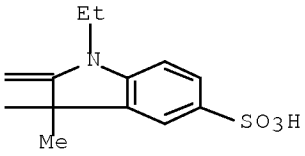


RN 851528-37-5 ZCAPLUS
CN 3H-Indolium, 5-[2-[(2,5-dioxo-1-pyrrolidinyl)oxy]-2-oxoethyl]-2-[7-[1-ethyl-1,3-dihydro-3-methyl-5-sulfo-3-(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-1,3-bis(4-sulfobutyl)-, inner salt (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 7 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:392531 ZCAPLUS Full-text

DOCUMENT NUMBER: 140:408234
TITLE: Chiral indole intermediates and their fluorescent cyanine dyes containing functional groups for application to biomolecules
INVENTOR(S): Mujumdar, Ratnaker B.; West, Richard Martin
PATENT ASSIGNEE(S): Carnegie Mellon University, USA; Amersham Biosciences UK Limited
SOURCE: PCT Int. Appl., 72 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004039894	A2	20040513	WO 2003-US14632	20030509
WO 2004039894	A3	20050303		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2484218	A1	20040513	CA 2003-2484218	20030509
AU 2003301687	A1	20040525	AU 2003-301687	20030509
EP 1525265	A2	20050427	EP 2003-808367	20030509
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005536623	T	20051202	JP 2004-548262	20030509
US 20060051758	A1	20060309	US 2005-513141	20050128
PRIORITY APPLN. INFO.:			US 2002-379107P P	20020510
			WO 2003-US14632 W	20030509

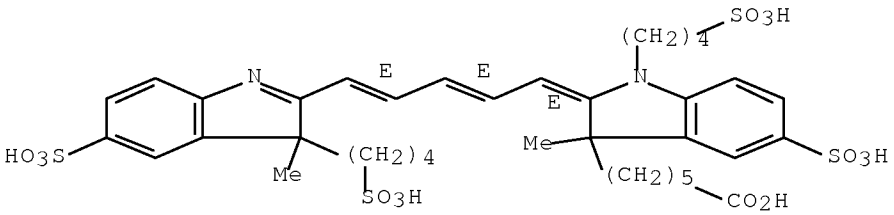
OTHER SOURCE(S): MARPAT 140:408234

AB This invention relates to the functionalized cyanine dyes and more particularly, to the synthesis of chiral 3-substituted 2,3'-dimethyl-3H-indole and its derivs. as intermediates for preparation of cyanine dyes, to methods of preparing these dyes and the dyes so prepared, which are suitable as fluorescent labels for use with biomols. In an example, an indolium sulfonate dye was prepared from EtI and 6-(2,3-dimethyl-5-sulfo-3-hydroindol-3-yl)hexanoic acid followed by tri-Et orthoformate.

IT 688339-28-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; production of chiral indole intermediates and their fluorescent cyanine dyes containing functional groups for application to biomols.)

RN 688339-28-8 ZCAPLUS
CN 1H-Indole-3-hexanoic acid, 2,3-dihydro-3-methyl-2-[(2E,4E)-5-[3-methyl-5-sulfo-3-(4-sulfobutyl)-3H-indol-2-yl]-2,4-pentadien-1-ylidene]-5-sulfo-1-(4-sulfobutyl)-, (2E)- (CA INDEX NAME)

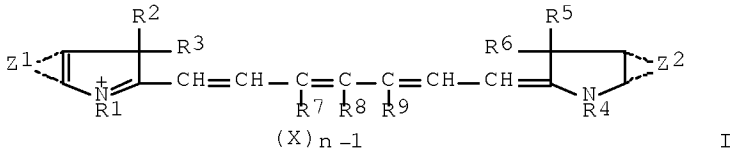
Double bond geometry as shown.



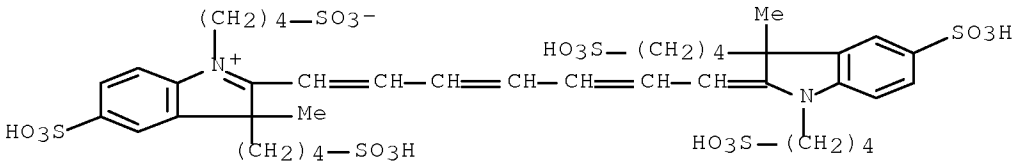
L6 ANSWER 6 OF 7 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:311363 ZCAPLUS Full-text
DOCUMENT NUMBER: 120:311363
ORIGINAL REFERENCE NO.: 120:54529a
TITLE: Silver halide photographic material containing infrared zone-absorbing filter dye
INVENTOR(S): Harada, Tooru
PATENT ASSIGNEE(S): Fuji Photo Film Co Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05313304	A	19931126	JP 1992-117583	19920511

PRIORITY APPLN. INFO.: JP 1992-117583 19920511
OTHER SOURCE(S): MARPAT 120:311363
GI

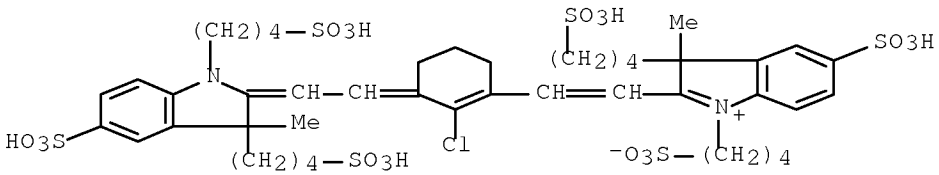


AB The material contains ≥1 dye I (R1-6 = alkyl; R2 and/or R3, R5 and/or R6 is substituted with CO2H or SO3H; Z1, Z2 = nonmetallic atom group forming benzo and naphtho ring; R7, R9 = H, nonmetallic atom group forming 5- or 6-membered ring; R8 = H, monovalent group; X = anion; n = 1, 2) containing ≥4 acidic substituents. The material shows good storage stability and low level residual dye after processing.
IT 154882-02-7 154882-03-8 154882-04-9
RL: USES (Uses)
(photog. IR-filter dye)
RN 154882-02-7 ZCAPLUS
CN 3H-Indolium, 2-[7-[1,3-dihydro-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]-1,3,5-heptatrien-1-yl]-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-, inner salt, potassium salt (1:5) (CA INDEX NAME)



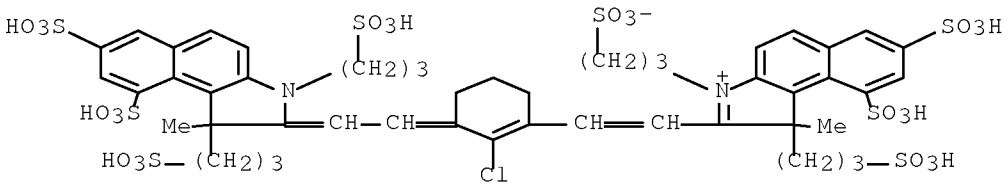
●5 K

RN 154882-03-8 ZCAPLUS
CN 3H-Indolium, 2-[2-[2-chloro-3-[2-[1,3-dihydro-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-2H-indol-2-ylidene]ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-methyl-5-sulfo-1,3-bis(4-sulfobutyl)-, inner salt, potassium salt (1:5) (CA INDEX NAME)



●5 K

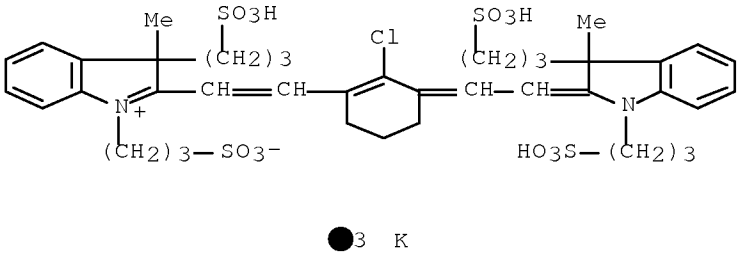
RN 154882-04-9 ZCAPLUS
CN 1H-Benz[e]indolium, 2-[2-[2-chloro-3-[2-[1,3-dihydro-1-methyl-7,9-disulfo-1,3-bis(3-sulfopropyl)-2H-benz[e]indol-2-ylidene]ethylidene]-1-cyclohexen-1-yl]ethenyl]-1-methyl-7,9-disulfo-1,3-bis(3-sulfopropyl)-, inner salt, potassium salt (1:7) (CA INDEX NAME)



●7 K

IT 154882-01-6P
RL: PREP (Preparation)
(preparation of, photog. IR-filter dye)
RN 154882-01-6 ZCAPLUS
CN 3H-Indolium, 2-[2-[2-chloro-3-[2-[1,3-dihydro-3-methyl-1,3-bis(3-

sulfopropyl)-2H-indol-2-ylidene]ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-methyl-1,3-bis(3-sulfopropyl)-, inner salt, potassium salt (1:3) (CA INDEX NAME)

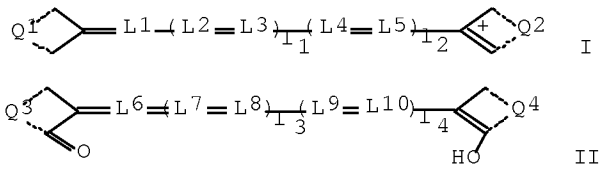


3 K

L6 ANSWER 7 OF 7 ZCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1993:157664 ZCAPLUS Full-text
DOCUMENT NUMBER: 118:157664
ORIGINAL REFERENCE NO.: 118:26863a,26866a
TITLE: Color proof preparation using photographic material
INVENTOR(S): Kuwajima, Shigeru; Aoki, Mario
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 35 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04186342	A	19920703	JP 1990-316438	19901121

PRIORITY APPLN. INFO.: JP 1990-316438 19901121
GI



I

II

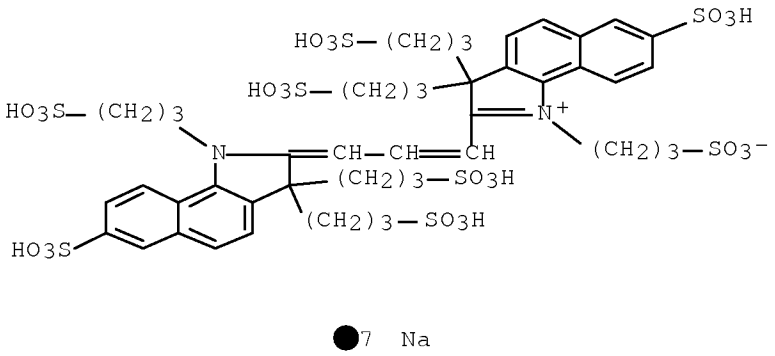
AB In making half tone color proofs by color separating a color original, forming black and white half tone images following half tone conversion, exposing through the half tone images using the color separated light or its complement to form half tone color images on a color photog. material, the photog. material contains ≥1 blue sensitive emulsion layers, ≥1 green-sensitive emulsion layers, and ≥1 red-sensitive emulsion layers from unprefogged internal latent image type Ag halide emulsions, and the Ag halide emulsion layer or the hydrophilic colloid layer contains (I) [Q1, Q2 = atoms required to form a basic heterocycle; L1-5 = methine, l1, l2 = 0, 1; l1 + l2 = integer

≥1; ≥3 acid groups and present in the mol.] and(or) (II) [Q3, Q4 = atoms required to form acidic ring; L6-10 = methine group; l3, l4 = 0, 1; l3 + l4 = integer ≥1; ≥2 acid groups are present in the mol]. Color proofs closely resembling the original can be produced.

IT 146695-56-9
RL: USES (Uses)
(photog. material for color proofing containing)

RN 146695-56-9 ZCAPLUS

CN 3H-Benz[g]indolium, 2-[3-[1,3-dihydro-7-sulfo-1,3,3-tris(3-sulfopropyl)-2H-benz[g]indol-2-ylidene]-1-propen-1-yl]-7-sulfo-1,3,3-tris(3-sulfopropyl)-, inner salt, sodium salt (1:7) (CA INDEX NAME)



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=> d his full

     (FILE 'HOME' ENTERED AT 11:09:54 ON 21 NOV 2008)

     FILE 'REGISTRY' ENTERED AT 11:10:13 ON 21 NOV 2008

     FILE 'ZCAPLUS' ENTERED AT 11:10:18 ON 21 NOV 2008
                E US2006-576956   /APPS
L1            1 SEA ABB=ON  PLU=ON  US2006-576956   /AP
                D SCA
                SEL RN

     FILE 'REGISTRY' ENTERED AT 11:11:11 ON 21 NOV 2008
L2           36 SEA ABB=ON  PLU=ON  (100-39-0/BI OR 105832-38-0/BI OR 117032-51
                -6/BI OR 123071-42-1/BI OR 127-09-3/BI OR 1497-49-0/BI OR
                1633-83-6/BI OR 182953-15-7/BI OR 4224-70-8/BI OR 6066-82-6/BI
                OR 609-14-3/BI OR 65476-32-6/BI OR 688339-30-2/BI OR 688339-34-
                6/BI OR 80-40-0/BI OR 851528-19-3/BI OR 851528-20-6/BI OR
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                -0/BI OR 851528-25-1/BI OR 851528-26-2/BI OR 851528-27-3/BI OR
                851528-28-4/BI OR 851528-29-5/BI OR 851528-30-8/BI OR 851528-31
                -9/BI OR 851528-32-0/BI OR 851528-33-1/BI OR 851528-34-2/BI OR
                851528-35-3/BI OR 851528-36-4/BI OR 851528-37-5/BI OR 90015-82-
                0/BI OR 98-71-5/BI)
                D SCA

     FILE 'STNGUIDE' ENTERED AT 11:19:23 ON 21 NOV 2008

     FILE 'REGISTRY' ENTERED AT 11:24:51 ON 21 NOV 2008
L3              STRUCTURE UPLOADED
L4            5 SEA SSS SAM L3
                D SCA
                D STAT QUE

     FILE 'STNGUIDE' ENTERED AT 11:43:46 ON 21 NOV 2008

     FILE 'REGISTRY' ENTERED AT 11:48:13 ON 21 NOV 2008
                D STAT QUE L4
L5           69 SEA SSS FUL L3
                SAVE TEMP CHA956STR3L/A L5

     FILE 'ZCAPLUS' ENTERED AT 11:48:55 ON 21 NOV 2008
L6            7 SEA ABB=ON  PLU=ON  L5
L7            1 SEA ABB=ON  PLU=ON  L1 AND L6
                D SCA
                SEL HIT RN

     FILE 'ZCAPLUS' ENTERED AT 11:52:32 ON 21 NOV 2008

     FILE 'REGISTRY' ENTERED AT 11:52:37 ON 21 NOV 2008
L8            9 SEA ABB=ON  PLU=ON  (851528-19-3/BI OR 851528-25-1/BI OR
                851528-28-4/BI OR 851528-29-5/BI OR 851528-32-0/BI OR 851528-34
                -2/BI OR 851528-35-3/BI OR 851528-36-4/BI OR 851528-37-5/BI)

     FILE 'ZCAPLUS' ENTERED AT 11:53:13 ON 21 NOV 2008
L9            1 SEA ABB=ON  PLU=ON  L8
                SET NOTICE OFF DISPLAY
                SET NOTICE OFF SEARCH
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L10         1823 SEA ABB=ON  PLU=ON  WEST R?/AU
L11           17 SEA ABB=ON  PLU=ON  BOSWORTH N?/AU
L12           29 SEA ABB=ON  PLU=ON  MUJUMDAR R?/AU
L13            1 SEA ABB=ON  PLU=ON  L10 AND L11 AND L12
L14            2 SEA ABB=ON  PLU=ON  L10 AND (L11 OR L12)
L15            1 SEA ABB=ON  PLU=ON  L11 AND L12
L16            2 SEA ABB=ON  PLU=ON  L14 OR L15
                 SET NOTICE LOGIN DISPLAY
                 SET NOTICE LOGIN SEARCH

     FILE 'MEDLINE, EMBASE, BIOSIS, WPIX' ENTERED AT 12:03:16 ON 21 NOV 2008
L17            2 SEA ABB=ON  PLU=ON  L16

     FILE 'REGISTRY' ENTERED AT 12:03:42 ON 21 NOV 2008

     FILE 'ZCAPLUS' ENTERED AT 12:03:47 ON 21 NOV 2008
                 D STAT QUE L16

     FILE 'MEDLINE, EMBASE, BIOSIS, WPIX' ENTERED AT 12:03:57 ON 21 NOV 2008
                 D STAT QUE L17

     FILE 'ZCAPLUS, WPIX' ENTERED AT 12:04:10 ON 21 NOV 2008
L18            2 DUP REM L16 L17 (2 DUPLICATES REMOVED)
                      ANSWERS '1-2' FROM FILE ZCAPLUS
                 D IBIB ABS L18 1-2

     FILE 'REGISTRY' ENTERED AT 12:04:52 ON 21 NOV 2008

     FILE 'ZCAPLUS' ENTERED AT 12:04:56 ON 21 NOV 2008
                 D STAT QUE L9
                 D IBIB ABS HITSTR L9 1

     FILE 'REGISTRY' ENTERED AT 12:05:46 ON 21 NOV 2008

     FILE 'ZCAPLUS' ENTERED AT 12:05:49 ON 21 NOV 2008
                 D STAT QUE L6
                 D IBIB ABS HITSTR L6 1-7


     FILE HOME

     FILE REGISTRY
     Property values tagged with IC are from the ZIC/VINITI data file
     provided by InfoChem.

     STRUCTURE FILE UPDATES:   20 NOV 2008  HIGHEST RN 1073589-44-2
     DICTIONARY FILE UPDATES:  20 NOV 2008  HIGHEST RN 1073589-44-2

     New CAS Information Use Policies, enter HELP USAGETERMS for details.

     TSCA INFORMATION NOW CURRENT THROUGH July 5, 2008.

       Please note that search-term pricing does apply when
       conducting SmartSELECT searches.

     REGISTRY includes numerically searchable data for experimental and
     predicted properties as well as tags indicating availability of
     experimental property data in the original document.  For information
     on property searching in REGISTRY, refer to:
```

http://www.cas.org/support/stngen/stndoc/properties.html

FILE ZCAPLUS

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FILE COVERS 1907 - 21 Nov 2008 VOL 149 ISS 22
FILE LAST UPDATED: 20 Nov 2008 (20081120/ED)

ZCAplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2008.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE STNGUIDE
FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Nov 14, 2008 (20081114/UP).

FILE MEDLINE
FILE LAST UPDATED: 19 Nov 2008 (20081119/UP). FILE COVERS 1949 TO DATE.

MEDLINE has been updated with the National Library of Medicine's revised 2008 MeSH terms. See HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

See HELP RANGE before carrying out any RANGE search.

MEDLINE Accession Numbers (ANs) for records from 1950-1977 have been converted from 8 to 10 digits. Searches using an 8 or 10 digit AN will retrieve the same record. The 10-digit ANs can be expanded, searched, and displayed in all records from 1949 to the present.

FILE EMBASE
FILE COVERS 1974 TO 21 Nov 2008 (20081121/ED)

EMBASE was reloaded on March 30, 2008.

EMBASE is now updated daily. SDI frequency remains weekly (default) and biweekly.

This file contains CAS Registry Numbers for easy and accurate substance identification.

Beginning January 2008, Elsevier will no longer provide EMTREE codes as part of the EMTREE thesaurus in EMBASE. Please update your current-awareness alerts (SDIs) if they contain EMTREE codes.

For further assistance, please contact your local helpdesk.

FILE BIOSIS
FILE COVERS 1926 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1926 TO DATE.

RECORDS LAST ADDED: 19 November 2008 (20081119/ED)

BIOSIS has been augmented with 1.8 million archival records from 1926
through 1968. These records have been re-indexed to match current
BIOSIS indexing.

FILE WPIX
FILE LAST UPDATED: 18 NOV 2008 <20081118/UP>
MOST RECENT UPDATE: 200874 <200874/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE
>>> Now containing more than 1.2 million chemical structures in DCR <<<

>>> IPC Reform backfile reclassifications have been loaded to end of
September 2008. No update date (UP) has been created for the
reclassified documents, but they can be identified by 20060101/UPIC,
and 20061231/UPIC, 20070601/UPIC, 20071001/UPIC, 20071130/UPIC,
20080401/UPIC, 20080701/UPIC and 20081001/UPIC.
ECLA reclassifications to mid August and US national classification
mid September 2008 have also been loaded. Update dates 20080401,
20080701 and 20081001/UPEC and /UPNC have been assigned to these. <<

FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
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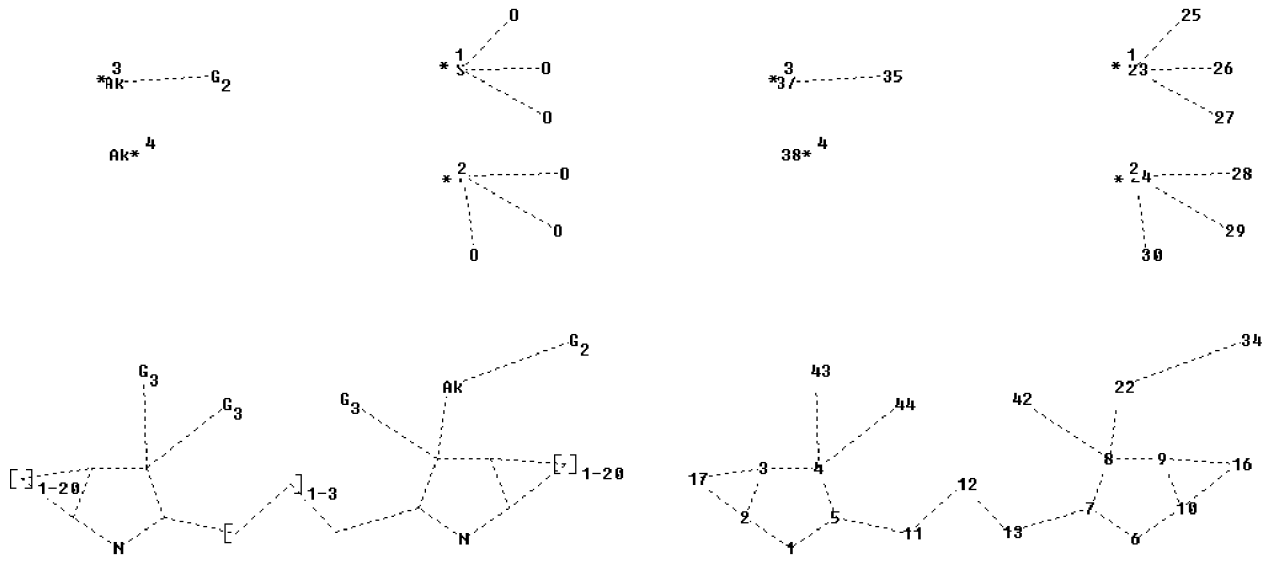
http://www.stn-international.de/training_center/patents/stn_guide.pdf

FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
http://scientific.thomsonreuters.com/support/patents/coverage/latestupdate

EXPLORE DERWENT WORLD PATENTS INDEX IN STN ANAVIST, VERSION 2.0:
http://www.stn-international.com/archive/presentations/DWPIAnaVist2_0608.p

>>> HELP for European Patent Classifications see HELP ECLA, HELP ICO <<<

Uploading L3.str



chain nodes :
22 23 24 25 26 27 28 29 30 34 35 37 38 42 43 44
ring nodes :
1 2 3 4 5 6 7 8 9 10 16 17
ring/chain nodes :
11 12 13
chain bonds :
4-43 4-44 7-13 8-22 8-42 22-34 23-25 23-26 23-27 24-28 24-30 24-29 35-37

ring/chain bonds :
5-11 11-12 12-13
ring bonds :
1-2 1-5 2-3 2-17 3-4 3-17 4-5 6-7 6-10 7-8 8-9 9-10 9-16 10-16
exact/norm bonds :
1-2 1-5 2-3 2-17 3-4 3-17 4-5 4-43 4-44 5-11 6-7 6-10 7-8 7-13 8-9 8-22 8-42 9-10 9-16 10-16 11-12 12-13 22-34 23-25 23-26 23-27 24-28 24-30 24-29 35-37

G2:[*1],[*2]

G3:[*3],[*4]

Connectivity :
5:3 E exact RC ring/chain 7:3 E exact RC ring/chain 11:3 X maximum RC ring/chain 12:3 X maximum RC ring/chain 13:3 X maximum RC ring/chain
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:CLASS 12:CLASS 13:CLASS 16:Atom 17:Atom 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS 27:CLASS 28:CLASS 29:CLASS 30:CLASS 34:CLASS 35:CLASS 37:CLASS 38:CLASS 42:CLASS 43:CLASS 44:CLASS
Generic attributes :
22:
Type of chain : Linear
Saturation : Saturated
37:

Type of chain : Linear
Saturation : Saturated

=>